

Table 6

	Comparative Example				
	1	2	3	4	5
Allyl-based prepolymer (A)					
DAPA	5	5	5	5	5
Radical polymerizable compound (b1)					
ASF400	4				
MPSMA		4			
BR-30			5		
SR-804				5	
NVC					5
Radical polymerizable compound (b2)					
DBVP	1	1			
Polymerization initiator					
BTTB-25	3.5	3.5	3.5	3.5	3.5
Dye					
NK4795	0.01	0.01	0.01	0.01	0.01
Solvent					
Acetone	6	6	6	6	6
Diffraction efficiency (%) transmission type	×	×	×	×	×
Diffraction efficiency (%) reflection type	×	×	×	×	×

× : less than 10% ○ : 30% or more

Because the hologram recording material composition of the invention is substantially in a solid state, a heat treatment for solidifying a flowable composition, as a conventional product, is not necessary. Therefore, the composition of the invention can simplify the film formation operation on producing a hologram recording medium, and thus exhibits good workability.

Because the recording layer obtained from the hologram recording material composition of the invention is substantially in a solid state, it is excellent in handling as when touched with hand, it does not contaminate

hand. Additionally, in the recording material having the recording layer, the recording layer suffers no drip or shift from the substrate when it is slanted, and it is thus easy to transport.

Furthermore, the recording material after recording a hologram has a high transparency and is excellent in stability because the allyl-based prepolymer (A) and the (meth)acrylate-based compound (B) are present in the form of a polymer having a sufficient high molecular weight, and it is free of a problem in that a record becomes unclear due to re-diffusion of them. Therefore, an operation of development or fixing for stabilizing the recorded image is not necessary, and thus a hologram can be recorded by a real-time operation.

Furthermore, when the radical polymerizable compound (b1) of which typical example is the fluorene-based compound, and the viscosity reducing agent (E) are used simultaneously, a reflection type hologram can also be recorded with a high diffraction efficiency, while maintaining the above-mentioned characteristics.

According to the invention, a hologram recording material composition can be provided that can eliminate complication in film forming operation, which is the problems associated with the conventional product, while exhibiting good performance demanded for a hologram, such as a transparency, a diffraction efficiency and a resolution, as similar to the conventional product.

Furthermore, the recording material after recording the hologram has the high transparency. Since the allyl-based prepolymer (A) and the (meth)acrylate-based compound (B) are present in the form of the polymer

having the sufficient high molecular weight by only one exposure to light, it is free of the problem in that the record becomes unclear due to the re-diffusion of them. The recording material is also excellent in long-term heat resistance, weather resistance, solvent resistance and the like. Therefore, the operation of development or fixing for stabilizing the recorded image is not necessary, and thus the hologram can be recorded by the real-time operation.